

Optical Remote Sensing for Fugitive Emissions Measurement

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Environmental Issue:

Measuring Air Pollution from Fugitive Sources

- Industrial
- Agriculture
- Remediation
- Landfill
- Mobile Source
- Emg. Response

Due to the spatial extent and non-homogenous nature of fugitive sources, quantification of total pollutant emission using traditional point sampling and modeling techniques can be problematic. A method for *rapid* and *direct* measurement of pollutant emission flux from fugitive sources is highly desirable.



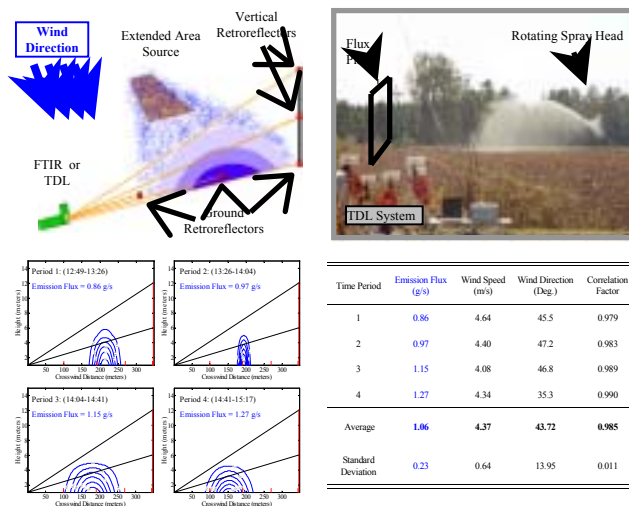
Technical Solution:

Optical Remotes Sensing and Flux Algorithm

Fourier Transform Infrared (FTIR) or Tunable Diode Laser (TDL) spectroscopy obtains pollutant concentration information along multiple paths. The pollutant data and wind information are inputs to a computational algorithm called Vertical Radial Plume Mapping (VRPM). VRPM yields a direct measure of the pollutant mass emission flux for the fugitive source under study.

- Automated Measurement (FTIR, TDL)
- Automated Analysis (VRPM)
- Real-time Emission Flux Data
- *Demonstration at Product Expo*

Example: Ammonia Emission from Lagoon Spraying Operation



Impact:

Enables Direct Measurement of Fugitive Sources For Emission Inventory and Model Development

- Bioreactor and Superfund Landfills
- Concentrated Agricultural Operations
- Homeland Security Applications
- Brownfield and Remediation Assessment

Partnerships:

Government, University and Industry Partners

- USDA
- DHS
- DOD
- EPA OWSE
- EPA R1
- EPA R8
- Univ. of KY
- NCSU
- GA Tech
- Three Rivers Solid Waste Authority
- Waste Management Inc.